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May 28, 1996

By Messenger

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

RECEIVED
MAY 28 1996
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

Re: CC Docket No. 92-297
Ex Parte Presentation

Dear Mr. Caton:

On May 21, 1996, an ex parte presentation in the above referenced matter was made by delivering the enclosed materials to Mr. Rudolfo L. Baca of Commissioner Quello's office.

An original and two copies of this letter and the accompanying materials are enclosed.

Respectfully submitted,

John P. Janka

Enclosures

No. of Copies rec'd 0+2

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May 21, 1996

By Facsimile

Mr. Rudolfo L. Baca
Office of Commissioner Quello
Federal Communications Commission
1919 M Street, N.W.
Room 802
Washington, D.C. 20554

Re: 28 GHz Rulemaking; CC Docket 92-297.

Dear Rudy:

I am writing on behalf of Hughes Communications, Inc. about an important new development in this proceeding: Hewlett-Packard's endorsement of a new solution to the LMDS "return link" problem.

When Hughes, GE, AT&T, Lockheed and Loral met with you and Commissioner Quello a few weeks ago to discuss the concerns of the GSO FSS industry, we addressed the possibility of accommodating LMDS return link needs below 27.5 GHz. It turned out that option was not feasible due to concerns at NASA, but the Commission staff has identified a new solution to the current stalemate in this proceeding. As you know, the fundamental problem is that there is not enough spectrum at 28 GHz to meet the needs of every service.

The 31.0-31.3 GHz band is currently allocated for the terrestrial fixed service and, we understand, is very lightly used. The staff has been exploring the possibility of

allocating all or part of the 31.0.-31.3 GHz band for LMDS, to be used in conjunction with the proposed allocation of 850 MHz for LMDS at 27.5-28.35 GHz.

Just a few days ago, one of the leading LMDS advocates, Hewlett-Packard, endorsed the 31.0 GHz solution in the enclosed letter as a "rather appealing alternative" that "Hewlett-Packard would enthusiastically support if it helped to facilitate a final rulemaking."

Hughes agrees with H-P. The 31.0 GHz solution allows the Commission promptly to proceed to a final allocation order based on the band plan originally proposed by the Commission in the July 1995 NPRM (so-called "Option 1"). The only significant difference is that in order to accommodate the new LMDS return link requirements that precluded sharing with MSS feeder links, LMDS would have its return links accommodated at 31.0 GHz, instead of at 29.1-29.25 GHz. Moreover, this result is consistent with the full Commission's edict in the Third NPRM (page 15, para 35) that any party not satisfied with Option 1 must bear the burden of any changes that are needed to accommodate it.

After more than three years of contentious proceedings, we encourage you to carefully review the 31.0 GHz solution as a way to allow *every* proponent of 28 GHz services to begin to implement its business plans promptly.

Sincerely yours,

John P. Janka

HEWLETT-PACKARD

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May 17, 1996

Jennifer Warren
Federal Communications Commission
2025 M Street NW
Washington, DC 20554

Re: Lockheed Martin "Potential LMDS Sharing Principles", dated April 29, 1996 and further comments on the use of 31 GHz for LMDS upstream transmissions,

Potential LMDS sharing principles

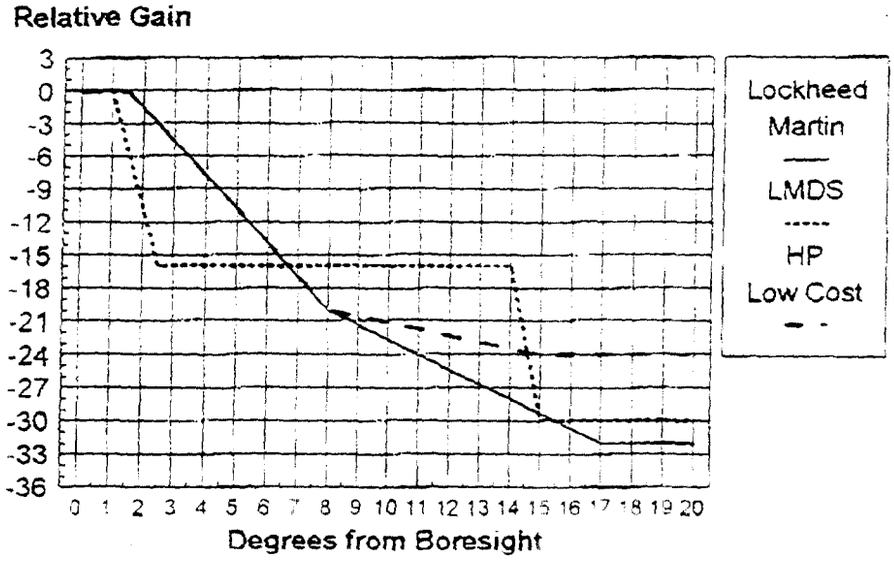
To protect LMDS:

1. Geographic areas in which service providers intend to deploy LMDS are defined by the licensed areas which at this time is expected to be Basic Trading Areas as defined by the Rand McNally Commercial Atlas. Some of these areas are extremely large, particularly in the West, and would take considerable time for a license holder to survey completely for the possible deployment of LMDS. We would expect that in many cases licenses would be acquired based on specific high potential markets within the Basic Trading Area and after initial systems were deployed in those areas, the less attractive regions would be surveyed and additional LMDS systems deployed. It would be impractical in those cases for service providers to provide a total deployment scenario shortly after receiving a license. Perhaps a compromise solution would be to place the burden on the LMDS service provider to deal with GSO/FSS interference on those deployments that are not spelled out within three or four months after the award of the license. In most cases these areas will tend to be in less populated regions.
2. We agree that there should be no constraints on GSO/FSS transmitting earth stations that are more than 16 km outside an LMDS service area.
3. The HP LMDS hub receiver has a thermal noise floor of -138 dBW/MHz. The Lockheed Martin proposal for Power Flux Density at the hub would result in an interference signal of approximately -128 dBW/MHz. Assuming circular polarization for the interferer and a linearly polarized hub receiver, the interference would be -131 dBW/MHz. A PFD limit of -95 dBW/m^2/MHz would, therefore reduce the upstream link margin of the LMDS system by 7 dB. If the GSO/FSS gateway PFD were reduced to -105 dBW/m^2/MHz, there would be little no or loss of link margin. A limit of -98 dBW/m^2/MHz as TI has suggested would result in a potential degradation in LMDS upstream link margin of 4 dB. Since there are a relatively small number of earth stations it should be possible to deal with these situations on a case by case basis. A worse case scenario would be that some limited number of LMDS subscribers would suffer performance degradation a higher percentage of the time than other subscribers in the service area. In summary we feel that a PFD limit of -98 dBW/m^2/MHz

represents a reasonable compromise, but it would be desirable to know the proposed locations for earth stations so that, where possible, steps could be taken, during LMDS deployment, to mitigate the effects of interference.

To protect GSO/FSS:

1. When we were first asked to comment on the Lockheed Martin proposal, it was not clear which antenna mask was being referenced. There were at least three different antenna masks discussed in our meetings that took place last December. Shown below is the antenna mask that Lockheed Martin used in their response to the TI comments (labeled Lockheed Martin) and the mask proposed by the LMDS proponents (labeled LMDS). Since last December we have had an opportunity to evaluate several alternative antenna designs from the standpoint of cost, producibility in high volumes and conformance to the LMDS mask specification. Our conclusions, so far, is that either the LMDS or Lockheed Martin antenna mask can be met with a specific antenna design but it would be at a cost penalty. An alternative mask specification is plotted below and labeled "HP Low Cost". Based on our current cost estimates conformance to the "LMDS" or "Lockheed Martin" mask would add about 10% to the cost of the CPE antenna unit when compared to the "HP Low Cost" mask. Regardless of which mask is proposed we strongly urge that one be allowed to tradeoff EIRP with relative antenna gain. This would enable the use of lower gain antennas in selected deployments. These lower gain antennas would be smaller and potentially lower cost.



In summary, we feel that a PFD limit of -98dBW/m^2/MHz for the GSO/FSS uplinks can be tolerated provided that there is coordination between the two services as to the location of LMDS hubs and GSO/FSS uplinks. We feel that we can design and manufacture antennas to meet either of the proposed antenna masks but strongly urge the consideration of a less stringent requirement in order to minimize costs in the CPE antenna units. In either case we believe the sharing rules should allow the tradeoff between EIRP on boresight with relative antenna gain.

Re: the use of the 31.0-31.3 GHz band for subscriber to hub transmissions

We first commented on the use of the 31 GHz band for upstream transmissions in a submittal to Bob James dated March 29, 1996. Based on a rather cursory analysis, we estimated that the cost impact on the CPE antenna unit would be in the range of 10-20% and that it would require 4-6 months for us to do the necessary redesign. Our engineering staff has continued to investigate this alternative and have concluded that the change could be accomplished for as little as 5% cost increase, comparable to the cost required to meet the more stringent antenna masks for the 29 GHz sharing rules.

Assuming that the 31 GHz band assignment for LMDS would not be encumbered by rules established for the purpose of sharing with other services and further assuming that the full 300 MHz in that band could be used for LMDS, makes this a rather appealing alternative. An alternative Hewlett-Packard would enthusiastically support if it helped to facilitate a final rule making.

Sincerely,

Douglas A. Gray
Program Manager, Wireless Systems
Microwave Communications Group
Hewlett-Packard Company

cc: Giselle Gomez
David Wye
Bob James